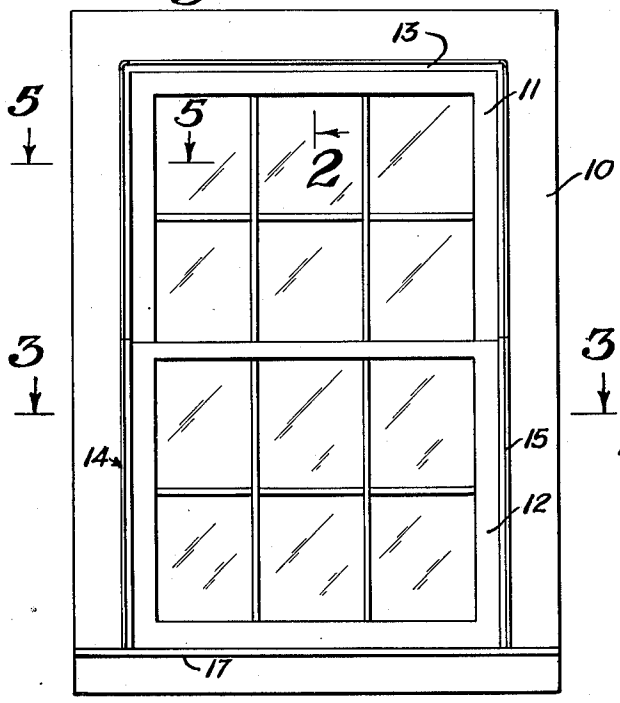
Feb. 12, 1952 N. TROMBETTA 2,585,601

WINDOW CONSTRUCTION

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Fig. 1



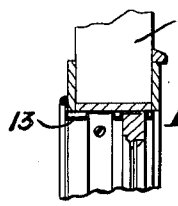




Fig. 2

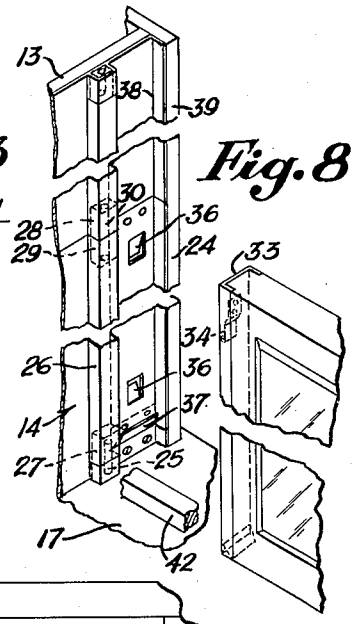



Fig. 8

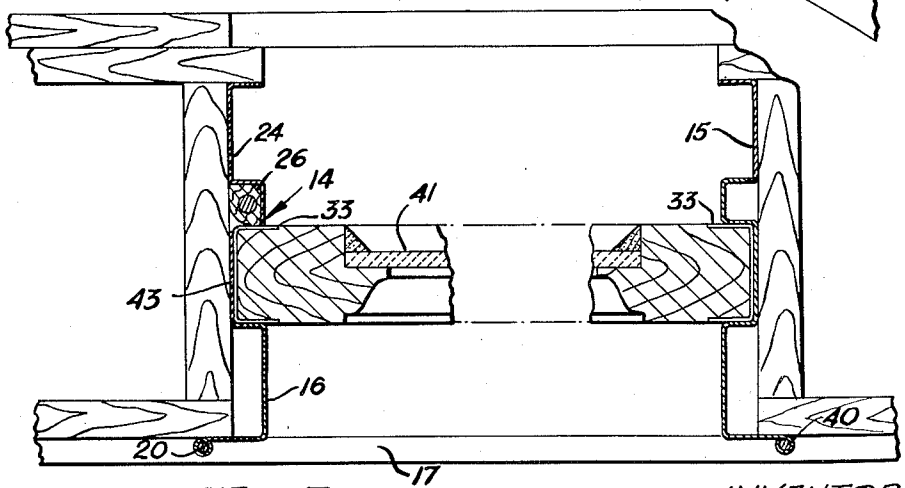



Fig. 3

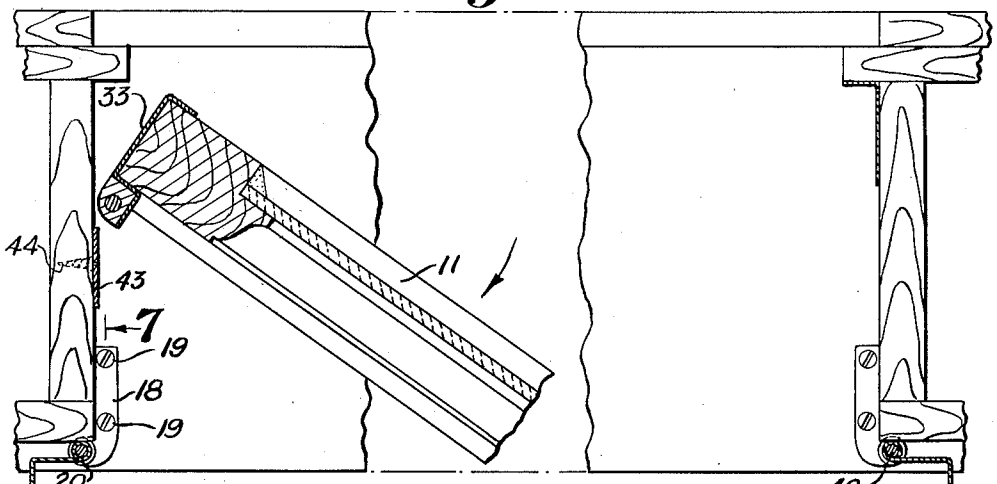
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WINDOW CONSTRUCTION

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Fig. 4



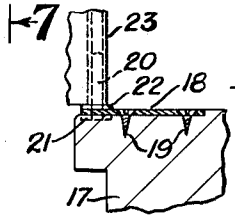
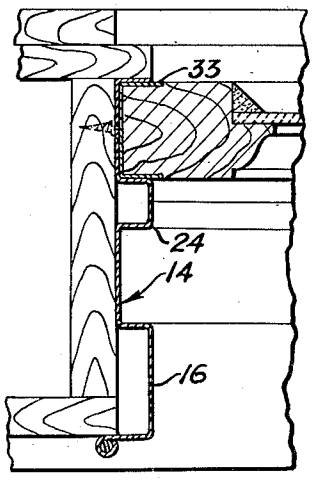




Fig. 7

Fig. 5



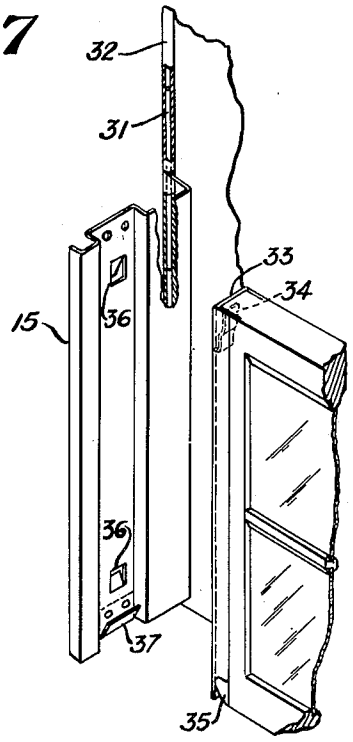




Fig. 6

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2,585,601

## WINDOW CONSTRUCTION

Nicola Trombetta, Hoboken, N. J.

Application September 24, 1949, Serial No. 117,567

2 Claims. (Cl. 20—52.2)

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This invention relates to improvements in window frames and sash of the slidable type.

In applicant's Patent No. 2,182,008, issued December 5, 1939, there is disclosed a window frame construction in which the sash are readily removed from the frame without the necessity for removing portions of the frame and in which sash weights, pulleys, and cords are eliminated. Subsequently it was found that the construction of the frame and sash could be improved which improvements are the subject of this application.

It is an object of the instant invention to decrease the cost of construction and installation of removable slidable sash windows.

A further object is to simplify the installation of removable slidable sash in oid window frames.

Another object is to provide window frame and sash construction of such design that either the upper or lower sash may be rotated inwardly from either jamb with the same equipment.

Other objects of the instant invention will become apparent in the course of the following specification.

In the accomplishment of these objectives, the usual strips forming the channels or slideways for sash are partially removed and in place thereof a single-unit upper channel member is attached to the top of the frame and extended downwardly on both jambs a distance substantially equal to the height of the upper sash. A three-piece lower channel member on one jamb coacts with the slideways provided by the upper one-piece structure to give continuous slideways on one side of the frame. The outer and the inner portions of the three-piece member are pivotally attached for inward rotation. A two-piece lower channel member is pivotally attached to the opposite jamb the inner piece of which also swings inwardly. In the bottom position, the lower sash is rotated inwardly by the innermost of the two-piece lower channel member. With the lower sash rotated out of the way and the upper sash slid to the lowest position, rotation of the upper sash inwardly by the outermost portion of tht three-piece lower channel member is provided. Elements of new design on the sides of the sash coacting with the slideways permits either sash to be raised or lowered to any position in a simple and effective manner. Utilizing in part the same elements, each sash is firmly held by the swingable channel members until released. The swingable channel members have been so designed that simply by inverting the same, the sash can be rotated inwardly from either jamb.

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The invention will appear more clearly when taken in connection with the accompanying drawings showing by way of example a preferred embodiment of the inventive idea.

In the drawings:

Figure 1 is a front elevational view of a window with removable slidable sash and constructed in accordance with the principles of this invention.

Figure 2 is a sectional view along 2—2 of Figure 1.

Figure 3 is a plan view taken along 3—3 of Figure 1 but on an enlarged scale.

Figure 4 is a plan view similar to Figure 3 but showing the method of removing the sash.

Figure 5 is a plan view along 5—5 of Figure 1.

Figure 6 is a perspective view of the right-hand jamb shown in Figure 4 with the lower sash in exploded position.

Figure 7 is a sectional view along 7—7 of Figure 4.

Figure 8 is a perspective view showing the left-hand jamb portion with the upper sash in exploded position.

Referring now in greater detail to the drawings where like reference numerals indicate like parts, reference numeral 10 indicates the window frame, 11 the upper sash, 12 the lower sash, 13 the one-piece upper channel or slideway member, 14 the three-piece lower channel member, and 15 the two-piece lower channel member.

The window frame 10 is of known type with the exception that the usual central and inner strips defining the sash channels or slideways are removed at least in part from the jambs and the top of the frame.

In place of the aforesaid strips forming the channels there is attached in the top of the frame a one-piece upper channel member 13 which, as shown in Figure 1, extends across the bottom of the frame at the top and thence downwardly on the left and right-hand jambs for a distance approximately equal to the height of the upper sash 11 in the raised position as shown in Figure 1. As most readily seen in Figure 2, the one-piece upper channel member 13, formed from any suitably rigid material, provides the upper part of the usual inner and outer channels, the inner channel being formed by spaced parallel central and inner strips and the outer channel being formed by an outer strip spaced parallel from the central strip. The inner edge of the upper member is turned to form a bead adjacent the inner periphery of the window frame. The inner and outer channels of the upper channel member 13 are aligned with channels formed by

the reversible lower channel members 14 and 15 described in the following paragraphs.

The three-piece lower channel member 14 for the left-hand jamb (Figs. 3 and 5) is formed with the inner channel member 16, the outer channel member 24, and the intermediate plate 43.

The inner channel member 16 is constituted of an inner strip and an integrally formed bead or turned edge adjacent the inner periphery of the windowframe and is aligned with the turned edge of the upper member. The channel member 16 at the bottom is pivotally attached to the sill 17 by the plate 18 (Figs. 4 and 7) which is held in position by the known fasteners 19. It will be noted in Figure 7, that a pin 20 is pivotally passed through the plate 18 in such a manner that the boss 21 on the bottom is similar to the boss 22 on the top so that the plate 18 may be used for mounting on either the left or right-hand jamb. The pin 20 after being passed through the plate 18, extends upwardly in the bead or turned edge 23 formed integral with the channel members and which extends around the three sides of the frame to provide an ornamentation for the inner edge as well as part of a hinge means utilized as further shown. At the top of the inner channel member 16 is a pin (not shown) inserted in the bead and extended upwardly in the aligned left-hand bead of the downwardly extended portion of the upper channel member 13 which permits inward rotation of the inner channel member 16 as shown in Figure 4.

A vertical plate 43 (Figs. 3 and 4) is attached in the frame adjacent the inner edge of the inner channel member 16 in the closed position and is aligned with the bottom portion of the inner channel of the upper member.

The outer channel member 24 (Figs. 3 and 8) of the three-piece lower channel member 14 is constituted of the central strip 26 and an integrally formed bottom portion aligned with the bottom portion of the outer channel of the upper member and is pivotally attached at the bottom to the sill 17 adjacent the outer edge of the previously mentioned vertical plate 43 by the pin 25 held in the bottom of the central strip 26 by a block 27. At the top, other blocks 28 and 29 carrying the pin 30 between the ends of the opposed central strips permit pivotally moving the channel member 24 inwardly after the channel member 16 and lower sash have been rotated inwardly and out of the way. As will be seen in Figure 3, the strip 26 is rounded at one corner to permit rotation. It will be noted that the integrally formed bottom portion of the outer member is turned inwardly adjacent the outer edge, the inwardly turned portion being aligned with the outer strip of the upper member.

On the right-hand jamb is the two-piece lower channel member 15 as most clearly seen in Figures 3 and 6. At the bottom, the innermost of the two-piece lower channel member 15 is pivotally attached to the sill 17 in the same manner as that previously described for the inner channel member 16 on the opposite jamb. Of course, the plate 18 on the right is inverted from the position shown at the left in Figure 4. At the top, the upper edge of the innermost of the two-piece channel member 15 is pivotally attached to the downwardly extending portion of the one-piece upper channel member by the pin 31 passed upwardly and downwardly in the aligned beads or turned edges 32 and across the jointure. An L-shaped plate coacts with the innermost of the two-piece channel member to form the outermost channel as illustrated in Figure 4.

While both the upper sash 11 and lower sash 12 are of standard construction, similar channel plates 33 are fixed by any known means along each side which facilitates sliding and provides a means for maintaining each sash in any desired position in the frame without the usual cords, pulleys, and weights as follows: At the top of each of the metal strips 33 on each sash a spring member 34 is secured in a known manner while at the bottom a space 35 (Fig. 6) is left between the plates 33 and the wood of the sash. The tension of the spring members 34 against the channels is sufficient to support the sash in any desired position. Openings 36 in the innermost of the two-piece lower channel member 15 (Fig. 6) and similar openings in the outer portion 24 of the three-piece lower channel member 14 provide a means for maintaining the upper part of the sash in the swingable channels when in the lower position while an outwardly and upwardly directed spring member 37 engages the space 35 between the plates 33 and the wood of the sash whereby the lower portion of the sash is likewise securely held in position while being rotated. It will be seen in Figures 6 and 8 that the openings 36 at the top are in reverse position to the similar openings at the bottom which permits interchangeability between the left and right jambs in accordance with the desired direction of rotation of the sash. As may also be seen in Figure 8, a weather strip 42 may be fastened on the sill between the slideways for the top and bottom sash that is aligned with the central strips and in which event the spring member 37 is raised above the top of the strip 42 to allow for the rotation of the upper sash 11 in the manner previously described.

*In operation*

Suppose it be desired to install the improved sash and slideways in an old window frame, all the known strips defining the channels around the frame except the outermost may be removed. Obviously, with but slight modification, only the lower portion of the central and innermost strips need be removed. The upper channel member 13 is then attached at the top of the frame by any known means in the manner shown in Figures 1 and 2. Next, the outer portion 24 of the three-unit channel member 14 is installed with the outer turned edge 38 (Fig. 8) against the inner surface of the standard unremoved strip 39, and the central strip pivotally attached to the sill 17 by the pin 25 as already described. At the top, a similar pin 30 pivotally connects the top of the central strip of the channel member 24 to the bottom of the aligned central strip in the side of the one-piece upper central strip of the channel member 13 so that the outer channel member 24 is free to be rotated inwardly.

Then, the vertical plate 43 is attached adjacent the inner edge of the central strip 26 of the channel member 24 by any suitable fasteners 44.

Next, the lower inner channel member 16 is pivotally attached to the sill 17 with the plate 18 and pivot pin 20 at the bottom while at the top, a pin (not shown) is pivotally passed in the aligned beads or turned edges of the upper and lower channel members across the jointure and so that the edge of the channel member 16 will be adjacent the inner edge of the vertical plate 43 when in the closed position. Thus, by rotating the channel member 16 inwardly it will as-

sume the position shown in Figure 3 whereby an inner slideway is provided for the lower sash 12 for the height of the window. When the channel member 16 is rotated inwardly as shown in Figure 4, the lower sash is free to swing inwardly on the innermost of the two-piece lower channel member 15 as shown in the following paragraph.

On the opposite (right-hand) jamb is the two-piece channel member 15 (Figs. 3 and 6) the innermost portion of which is pivotally attached to the sill 17 by the pivot pin 40 similar to the previously described pivot pin 20 and at the top by the pin 31 extending upwardly and downwardly in the aligned beads 32 across the jointure. Thus, the innermost of the two-piece lower channel member 15 is free to rotate inwardly assuming, of course, that the lower inner channel member 16 has been rotated out of the way.

Suppose further, that it is desired to clean the outside of the glass 41 (Fig. 3) in the lower sash 12. The sash 12 is moved to the down position shown in Figure 1, and the lower inner channel member 16 rotated inwardly as shown in Figure 4. Then, the sash 12, held at the top by the coaction of the spring member 34 and the opening 36 and at the bottom by the coaction of the member 37 and the slot 35 is free to be pivoted inwardly by the innermost of the two-piece lower channel member 15 as shown in Figure 6. In this manner, the outer surface of the glass 41 is in convenient position for cleaning without the necessity for leaning out of the window. If it be desired to remove the lower sash 12 from the channel member 15, an upward movement will release both the spring member 34 and the slot 35 from the coacting members.

In a similar manner, the upper sash 11, with the lower sash 12 out of the way, may be slid to the down position shown in Figure 8. With the lower inner channel member 16 rotated inwardly as shown in Figure 4, the upper sash 11 held in the outer channel member 24 in a manner similar to that already described for the lower sash may be swung inwardly about the pivot pins, the glass cleaned on the outside with ease and/or the sash removed from the channel member in a manner similar to that already described for the removal of the lower sash.

Obviously, the upper channel member is readily fitted in position and may be made in accordance with established standards. The coacting lower channel members 14 and 15 have been designed for reversibility and may be installed on either jamb merely by turning through 180° whereupon the sash will be rotated inwardly in the reverse manner from that previously described. Thus, in the case of a double window, the inward rotation of the sash is never in interference.

It will be understood that the invention is not limited to the exact disclosure herein described but may lend itself to a variety of expressions within the scope of the appended claims.

What is claimed is:

1. In a window frame for vertically slidable upper and lower sash, the frame having a single-unit upper channel member on the bottom surface of the top thereof, the upper channel member extending downwardly from the top of each jamb substantially to the bottom of the upper sash in the raised position and having at least on each jamb spaced parallel central and inner strips forming a part of an inner channel for the lower sash and an outer strip spaced parallel from the central strip forming a part of an outer channel for the upper sash, the inner strip having an inner integrally formed turned edge adjacent the inner periphery of the window frame; the improvements comprising a reversible lower channel member for each jamb coacting with the upper channel member, one of the reversible members comprising at least an outer and an inner lower channel member, the outer channel member comprising a central strip in opposed relationship with the central strip of the upper channel member and a bottom portion integrally formed with the central strip and aligned with the bottom of the outer channel of the upper channel member, the integrally formed bottom portion of the outer channel being turned inwardly adjacent the outer edge and aligned with the outer strip of the upper channel member, means for pivotally hinging together the opposed ends of the upper and outer members, and means for pivotally hinging the free end of the central strip of the outer member in the window sill with the central strips of the members aligned; the inner channel member comprising an inner strip in opposed relationship with the inner strip of the upper member and an integrally formed turned edge in opposed relationship with the turned edge of the upper member, means for pivotally hinging together the opposed ends of the turned edges of the members, and means for pivotally hinging the free end of the turned edge of the inner member to the window sill, the turned edges of the members being aligned; a second reversible lower channel member for the opposite jamb, the inner edge of the second inner member being turned and in opposed relationship with the turned edge of the upper member, the second inner member further having integrally formed inner and central strips aligned with the inner and central strips of the upper member, means for pivotally hinging together the opposed ends of the turned edges of the upper member and the second inner member, means for pivotally hinging the free end of the turned edge of the second inner member to the window sill, and guide means aligned with the inwardly turned edge of the outer channel member and the outer strip of the upper channel member disposed on the jamb and outwardly spaced from the central strip of the second reversible lower channel member.

2. In a window frame for vertically slidable upper and lower sash, the frame having a single-unit upper channel member on the bottom surface of the top thereof, the upper channel member extending downwardly from the top of each jamb substantially to the bottom of the upper sash in the raised position and having at least on each jamb spaced parallel central and inner strips forming a part of an inner channel for the lower sash and an outer strip spaced parallel from the central strip forming a part of an outer channel for the upper sash, the inner strip having an integrally formed turned edge adjacent the inner periphery of the window frame; the improvements comprising a reversible lower channel member for each jamb coacting with the upper channel member, one of the reversible lower channel members comprising an outer channel member and a plate and an inner channel member, the outer channel member comprising a central strip in opposed relationship with the central strip of the upper channel member and a bottom portion integrally formed with the central strip and aligned with the bottom of the outer

channel of the upper channel member, the integrally formed bottom portion of the outer channel member being turned inwardly adjacent the outer edge and aligned with the outer strip of the upper channel member, and means for pivotally hinging together the opposed ends of the central strips of the outer and upper members and the free end of the central strip of the outer member to the window sill; means for securing the plate to the jamb adjacent the inner edge of the central strip of the outer member and aligned with the bottom portion of the inner channel of the upper member; the inner channel member comprising an inner strip aligned with the inner strip of the upper member and an integrally formed turned edge in opposed relationship with the turned edge of the upper member, means for pivotally hinging together the opposed ends of the turned edges and the free end of the turned edge of the inner member to the window sill with the turned edges of the inner and upper members aligned; a second reversible lower channel member for the opposite jamb, the second member comprising an L-shaped member disposed on the jamb, the horizontal portion of the L-shaped member being inwardly directed and aligned with the inwardly turned portion of the outer member of the first mentioned lower channel member and the upright portion of the L-shaped member being aligned with the bottom portion of the outer member of the first mentioned lower channel member; the second reversible lower channel member further comprising a second inner channel member, the second member comprising central and inner strips integrally formed on opposite sides of a bottom portion, the strips and the bottom portion being aligned with the central and inner strips and bottom portion of the upper member, the inner edge of the second member being turned and in opposed relationship with the turned edge of the upper member, means for pivotally hinging together the opposed ends of the turned edges of the members, means for pivotally hinging the free end of the turned edge of the second inner member to the window sill, means intermediate the upper sash on the side of the first mentioned reversible lower channel member and the bottom portion of the first mentioned lower outer channel member for releasably holding the sash in position, and means intermediate the lower sash on the side of the second mentioned reversible lower channel member and the bottom portion of the inner channel of said member for releasably holding the lower sash in position.



NICOLA TROMBETTA.


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